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EXAMINER	
JACKSON, CORNELIUS H	
ART UNIT	**PAPER NUMBER**
2828	

DATE MAILED: 06/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/692,860	MONTY, NATHAN PAUL	
	Examiner	Art Unit	
	Cornelius H. Jackson	2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-37* is/are pending in the application.

4a) Of the above claim(s) *34-37* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10/27/03; 04/06/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

   I. Claims 1-33, drawn to a laser waveguide, classified in class 372, subclass 55.

   II. Claims 34-37, drawn to a method of forming a laser waveguide, classified in class 438, subclass 31.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as product made and process of making. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the product as claimed can be made by another and materially different process since the products, as claimed in independent claims 1, 13 and 28, does not require a protrusion or a compact structure as required by the process claim 34 and the product may also be made of all metal.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with Mark Olds on 24 May 2004 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-33. Affirmation of this election must be made by applicant in replying to this Office action. Claims 34-37 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-5, 8, 13, 15-17, 21, 28, 32 and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Chenausky et al. (4438514). Regarding claim 1, Chenausky et al. disclose a laser waveguide **Figs. 1-4** for use in waveguide lasers comprising; an upper electrode **110**, the upper electrode **110** having a first surface; and a lower electrode **112**, the lower electrode **112** having a second surface, where the first surface and second surface are separated by at least one sidewall **(the sidewalls of channels 132, 134)**, where the first surface and the second surface face each other, portions of

which are not completely covered by the at least one sidewall **(as can be seen in Figs. 2 and 3, the inner most sidewalls of channels 132 and 134 has at least one gap 192 or 193; in regards to Fig. 4, the sidewalls of the two sections in the shape of a triangle fail to reach the opposing side, leaving a gap at an end surface)**, and where the first surface, second surface, and the at least one sidewall form the laser waveguide, **see col. 1, line 43-col. 2, line 46**.

Regarding claim 13, Chenausky et al. disclose a waveguide laser **Figs. 1-4** comprising; a laser waveguide, wherein the laser waveguide is formed by electrodes **110, 112** and at least one sidewall **(the sidewalls of channels 132, 134)** such that no surface of the electrodes **110, 112** forming the boundary of the waveguide is completely covered by the at least one sidewall; an oscillating electromagnetic field **RF discharges**, wherein the electromagnetic field is produced by an oscillating current supplied to the electrodes such that the electromagnetic field is produced in the laser waveguide; and a lasing material **plasma** placed in the waveguide, wherein the electromagnetic field produces stimulated emission of electromagnetic radiation from the lasing material **plasma, see col. 1, line 43-col. 2, line 46**.

Regarding claim 28, Chenausky et al. disclose a waveguide laser **Figs. 1, 2 and 4** comprising; a laser waveguide, wherein the laser waveguide is formed by electrodes **110,112** and at least one sidewall **(the sidewalls of channels 132, 134)** such that no surface of the electrodes **110,112** forming the boundary of the waveguide is completely covered by the at least one sidewall **(the sidewalls of channels 132, 134)**, where the sidewall has first and second surfaces **(with regards to Fig. 2, the two end portions**

surfaces and the middle portion surface; with regards to Fig. 4, it can be seen that the sidewalls of each triangular shaped sidewall increase /decrease along the length of the waveguide) forming a portion of the laser waveguide, and where the portion varies in distance from the first surface to the second surface along the length of the waveguide; a housing **see col. 1, line 61**, where the housing encompasses the laser waveguide and is pressurized to sub-atmospheric pressures; an oscillating electromagnetic field **RF discharges**, wherein the electromagnetic field is produced by an oscillating current supplied to the electrodes such that the electromagnetic field is produced in the laser waveguide; and a lasing material **plasma** placed in the waveguide, wherein the electromagnetic field produces stimulated emission of electromagnetic radiation from the lasing material **plasma**, **see col. 1, line 43-col. 2, line 46**.

Regarding claims 2, 3, 15 and 16, Chenausky et al. disclose all the stated limitations as explained above, **see Figs. 2-4**.

Regarding claims 4 and 17, Chenausky et al. disclose sectional sidewalls separated by sectional gaps, as explained above, **see Figs. 2 and 3. In Fig. 4, each triangular shaped sidewall is seen as a sectional sidewall separated by gap 133**.

Regarding claim 5, Chenausky et al. disclose at least one sidewall is made of ceramic, **see col. 1, line 60**.

Regarding claims 8 and 21, Chenausky et al. disclose all the stated limitations, since it is inherent that the electrodes are metal.

Regarding claims 32 and 33, Chenausky et al. disclose all the stated limitations, **see Fig. 4**.

7. Claims 1-5, 8, 13, 15-17, 21, 26-28, 32 and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Yarborough et al. (5140606). Regarding claim 1, Yarborough et al. disclose a laser waveguide **Figs. 1-7** for use in waveguide lasers comprising; an upper electrode **36**, the upper electrode **36** having a first surface; and a lower electrode **38**, the lower electrode **38** having a second surface, where the first surface and second surface are separated by at least one sidewall **60** where the first surface and the second surface face each other, portions of which are not completely covered by the at least one sidewall and where the first surface, second surface, and the at least one sidewall form the laser waveguide, **see col. 6, line 15-col. 8, line 13**.

Regarding claim 13, Yarborough et al. disclose a waveguide laser **Figs. 1-7** comprising; a laser waveguide, wherein the laser waveguide is formed by electrodes **36,38** and at least one sidewall **60** such that no surface of the electrodes **36,38** forming the boundary of the waveguide is completely covered by the at least one sidewall **60**; an oscillating electromagnetic field **RF generator**, wherein the electromagnetic field is produced by an oscillating current supplied to the electrodes such that the electromagnetic field is produced in the laser waveguide; and a lasing material **CO2 lasing mixture; col. 6, line 47** placed in the waveguide, wherein the electromagnetic field produces stimulated emission of electromagnetic radiation from the lasing material, **see col. 6, line 15-col. 8, line 13**.

Regarding claim 28, Yarborough et al. disclose a waveguide laser **Figs. 1-7** comprising; a laser waveguide, wherein the laser waveguide is formed by electrodes **36,38** and at least one sidewall **60** such that no surface of the electrodes **36,38** forming the boundary of the waveguide is completely covered by the at least one sidewall **60**, where the sidewall has first and second surfaces forming a portion of the laser waveguide, and where the portion varies in distance from the first surface to the second surface along the length of the waveguide **(the variation in contour of the inner surface to the outer surface of the sidewalls is continuous along the length direction of the waveguide)**; a housing **20**, where the housing encompasses the laser waveguide and is pressurized to sub-atmospheric pressures; an oscillating electromagnetic field **RF generator**, wherein the electromagnetic field is produced by an oscillating current supplied to the electrodes such that the electromagnetic field is produced in the laser waveguide; and a lasing material **CO2 lasing mixture; col. 6, line 47** placed in the waveguide, wherein the electromagnetic field produces stimulated emission of electromagnetic radiation from the lasing material, **see col. 6, line 15-col. 8, line 13**.

Regarding claims 2, 3, 4, 15, 16 and 17, Yarborough et al. disclose all the stated limitations, **see Fig. 3**.

Regarding claim 5, Yarborough et al. disclose at least one sidewall is made of ceramic, **see col. 12, lines 28-38**. **Also see Shackleton et al. (2003/0058913), [0002], [0013], [0023] and [0024]**.

Regarding claims 8 and 21, Yarborough et al. disclose all the stated limitations, **see col. 12, line 33**.

Regarding claims 26 and 27, Yarborough et al. disclose all the stated limitations, **see col. 6, line 47**.

Regarding claims 32 and 33, Yarborough et al. disclose all the stated limitations, **see Figs. 3, 5 and 7**.

8. Claims 1-5, 8, 10-13, 15-17, 21 and 23-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Vitruk et al. (5953360). Regarding claim 1, Vitruk et al. disclose a laser waveguide **Fig. 2 (and Figs. 7 and 8)** for use in waveguide lasers comprising; an upper electrode **60 (252)**, the upper electrode **60 (252)** having a first surface **72**; and a lower electrode **66 (254)**, the lower electrode **66 (254)** having a second surface **76**, where the first surface **72** and second surface **78** are separated by at least one sidewall **74,78 (276)**, where the first surface **72** and the second surface **76** face each other, portions of which are not completely covered by the at least one sidewall **74,78 (276)**, and where the first surface, second surface, and the at least one sidewall form the laser waveguide, **see col. 2, line 20-col. 6, line 54**.

Regarding claim 13, Vitruk et al. disclose a waveguide laser **Fig. 2 (and Figs. 7 and 8)**comprising; a laser waveguide, wherein the laser waveguide is formed by electrodes **60,66 (252,254)** and at least one sidewall **74,78** such that no surface of the electrodes **60,66 (252,254)** forming the boundary of the waveguide is completely covered by the at least one sidewall **74,78 (276)**; an oscillating electromagnetic field **83 (280)**, wherein the electromagnetic field is produced by an oscillating current supplied to

the electrodes such that the electromagnetic field is produced in the laser waveguide; and a lasing material **col. 1, lines 20-22** placed in the waveguide, wherein the electromagnetic field produces stimulated emission of electromagnetic radiation from the lasing material, **see col. 2, line 20-col. 6, line 54**.

Regarding claims 2 and 15, Vitruk et al. disclose the at least one sidewall is more than one sidewall, **74,78**.

Regarding claims 3 and 16, Vitruk et al. disclose the more than one sidewall are sectional, since sidewall **74** has a section to one side of the electrode, while sidewall **78** has a section on the other side of the electrodes.

Regarding claims 4 and 17, Vitruk et al. disclose a sectional gap **58**.

Regarding claims 5 and 18, Vitruk e al. disclose a t least one sidewall is ceramic **(276)**.

Regarding claims 8 and 21, Vitruk et al. disclose the electrodes **60,66** are made of metal.

Regarding claims 10-12 and 23-25, Vitruk et al. disclose the stated limitations, **see Figs 5 and 6**.

9. Claims 1-5, 8, 9, 13, 15-17, 21, 22, 26-28, 32 and 33 are rejected under 35 U.S.C. 102(e) as being anticipated by Shackleton et al. (5140606). Regarding claim 1, Shackleton et al. disclose a laser waveguide **Figs. 1-4 and 7** for use in waveguide lasers comprising; an upper electrode **24E(24F)**, the upper electrode **24E(24F)** having a first surface; and a lower electrode **26E(26F)**, the lower electrode **26E(26F)** having a second surface, where the first surface and second surface are separated by at least

one sidewall **60(70)** where the first surface and the second surface face each other, portions of which are not completely covered by the at least one sidewall and where the first surface, second surface, and the at least one sidewall form the laser waveguide, **see [0002]-[0008] and [0023]-[0031]**.

Regarding claim 13, Shackleton et al. disclose a waveguide laser **Figs. 1-4 and 7** comprising; a laser waveguide, wherein the laser waveguide is formed by electrodes **24E(24F), 26E(26F)** and at least one sidewall **60(70)** such that no surface of the electrodes **24E(24F), 26E(26F)** forming the boundary of the waveguide is completely covered by the at least one sidewall **60(70)**; an oscillating electromagnetic field **RF potential**, wherein the electromagnetic field is produced by an oscillating current supplied to the electrodes such that the electromagnetic field is produced in the laser waveguide; and a lasing material **CO2 lasing gas mixture; [0023]** placed in the waveguide, wherein the electromagnetic field produces stimulated emission of electromagnetic radiation from the lasing material, **see [0002]-[0008] and [0023]-[0031]**.

Regarding claim 28, Shackleton et al. disclose a waveguide laser **Figs. 1-4 and 7** comprising; a laser waveguide, wherein the laser waveguide is formed by electrodes **24E(24F), 26E(26F)** and at least one sidewall **60(70)** such that no surface of the electrodes **24E(24F), 26E(26F)** forming the boundary of the waveguide is completely covered by the at least one sidewall **60(70)**, where the sidewall has first and second surfaces forming a portion of the laser waveguide, and where the portion varies in distance from the first surface to the second surface along the length of the waveguide

(the variation in contour of the inner surface to the outer surface of the sidewalls is continuous along the length direction of the waveguide); a housing **22**, where the housing encompasses the laser waveguide and is pressurized to sub-atmospheric pressures; an oscillating electromagnetic field **RF potential**, wherein the electromagnetic field is produced by an oscillating current supplied to the electrodes such that the electromagnetic field is produced in the laser waveguide; and a lasing material **CO2 lasing gas mixture; [0023]** placed in the waveguide, wherein the electromagnetic field produces stimulated emission of electromagnetic radiation from the lasing material, **see [0002]-[0008] and [0023]-[0031]**.

Regarding claims 2, 3, 4, 15, 16 and 17, Shackleton et al. disclose all the stated limitations, **see Figs. 2-4 and 7**.

Regarding claim 5, Shackleton et al. disclose at least one sidewall is made of ceramic, **see [0002], [0013], [0023] and [0024]**.

Regarding claims 8 and 21, Shackleton et al. disclose all the stated limitations, **see [0006]**.

Regarding claims 9 and 22, Shackleton et al. disclose all the stated limitations, **see [0027]**.

Regarding claims 32 and 33, Shackleton et al. disclose all the stated limitations, **see Figs. 2-10**.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 6, 7, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yarborough et al. (5140606). Yarborough et al., as applied to claims 1 and 13 above, teach all the stated limitation except for the sidewall being made of BeO or AlN; instead, Yarborough et al. teach an insulative material, which was known by one of ordinary skill in the art at the time the invention was made to be a ceramic. The materials made of BeO or AlN are ceramics and it would have been within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

12. Claims 14 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yarborough et al. (5140606) in view of Mixon et al. (5764505). Yarborough et al., as applied to claims 13 and 28 above, teach a RF power supply **RF generator** and all the stated limitation except for a microprocessor. Mixon et al. teach a microprocessor for controlling a gas discharge laser is well known, **see col. 1, line 9-col. 3, line 3**. It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the microprocessor of Mixon et al. with the laser of Yarborough et al. to allow automatic operation of a laser system, **see col. 3, lines 6-38**.

13. Claims 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yarborough et al. (5140606). Yarborough et al., as applied to claim 28 above, teach all the stated limitation except for the housing being formed from at least one electrode or sidewall; instead, Yarborough et al. teach a housing surrounding the electrodes and sidewalls which surrounds the waveguide. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use any element that surrounds the waveguide as housing, since it has been held that constructing a formerly integral structure in various elements (or formerly separate elements into one) involves only routine skill in the art [Nerwin v. Erlichman, 168 USPQ 177, 179] and since it was well known that the electrodes and the sidewalls may be used as housing **see Krawetz (3641454) col. 2, lines 25-33**.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cornelius H. Jackson whose telephone number is (571)272-1942. The examiner can normally be reached on 8:00 - 5:00, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571)272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

chj

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